

CLAIMS:

- 5 1. Vehicle control system (10), capable of controlling a number of controllable motor vehicle subsystems (30-80) according to at least two preset vehicle operating modes, the control system comprises a central control unit (20) for controlling the motor vehicle subsystems (30-80), and a driver interface (90) with an input arrangement (92) and an output arrangement (94) for selecting operating mode, **characterized in that** it comprises at least one sensor (100-130) for registering current operating conditions, and that the central control unit (20) is arranged to limit access to at least one of the preset operating modes in response to an output value from at least one sensor (100-130).
- 10 2. Vehicle control system (10) according to claim 1, **characterized in that** it comprises at least one load sensor (100) for registering the load in the vehicle.
- 15 3. Vehicle control system (10) according to claim 1 or 2, **characterized in that** it comprises at least one towing sensor (110) arranged to recognize if the vehicle is used for towing a trailer or the like.
- 20 4. Vehicle control system (10) according to any of the claims 1 to 3, **characterized in that** it comprises at least one speed sensor (120) arranged to give a signal corresponding to the speed of the vehicle.
- 25 5. Vehicle control system (10) according to any of the claims 1 to 4, **characterized in that** it comprises at least one tilting sensor (120) arranged to register tilting of the vehicle.
- 30 6. Vehicle control system (10) according to any of the claims 1 to 5, **characterized in that** it comprises at least one controllable accessory system (140-180) and that the central control unit (20) is arranged to limit access to at least one of the preset operating modes in response to a mode of operation of at least one accessory system (140-180).

7. Vehicle control system (10) according to claim 6, **characterized in that** it comprises a controllable accessory system in the form of a foldable towing hook (140).
8. Vehicle control system (10) according to claim 6 or 7, **characterized in that** it comprises a controllable accessory system in the form of a foldable roof rack (150).
9. Vehicle control system (10) according to any of the claims 1 to 8, wherein one of the preset vehicle operating modes is a sport mode, **characterized in that** the sport mode is not selectable when the load registered by the load sensors (100) exceeds a preset load limit, nor when the towing sensor 110 indicates that there is a trailer or the like hooked onto the towing hook.
10. Vehicle control system (10) according to any of the claims 1 to 9, wherein one of the preset vehicle operating modes is a heavy-load mode, **characterized in that** the heavy-load mode is automatically selected when the load registered by the load sensors 100 exceeds a preset load limit, and when the towing sensor 110 indicates that there is a trailer or the like hooked onto the towing hook.
11. Vehicle control system (10) according to any of the claims 1 to 10, wherein one of the preset vehicle operating modes is an off-road mode, **characterized in that** the vehicle control system 10, in off-road mode, prevents further acceleration when the speed registered by the speed sensor 120 reaches a predefined speed limit, and that off-road mode is locked when the tilting angle registered by the tilting sensor 130 exceeds a predetermined value.
12. Vehicle control system (10) according to any of the claims 1 to 11, **characterized in that** the output arrangement (94) is integrated with a dashboard of display type, and in that the dashboard-image is mode-adapted for each preset operating mode.
13. Automobile, **characterized in that** it comprises a vehicle control system (10) according to any of the claims 1 to 12.

14. Driver interface (90) for controlling a vehicle control system (10), capable of controlling a number of controllable motor vehicle subsystems according to at least two preset vehicle operating modes, **characterized in that** it comprises a dashboard of display type arranged to display a dashboard-image, and in that the dashboard-image is mode-adapted for each preset operating mode.
15. Driver interface (90) according to claim 14, **characterized in that** each mode-adapted dashboard-image comprises centrally arranged main section (310) for displaying vital driving related information, and two submenu/information areas (320a, 320b) adjacent to the main section (310).
16. Driver interface (90) according to claim 15, **characterized in that** the main section (310) comprises a substantially circular analogue meter (312) for displaying the speed or RPM, a gear field (314) for displaying selected gear, a misc. info field (316) for displaying other information and important alerts, a number of selection fields (340 a-h) disposed along the perimeter of the main section (310), and three shortcut fields (350 a-c) at the lower section.
17. Driver interface (90) according to claim 16, **characterized in that** the selection fields (340 a-h) form a part of a menu system used for controlling the features of the vehicle control system (10), and the location relative the center of the main section (310) indicates how each selection field (340 a-h) is selected with an input arrangement (92) of the driver interface 90.
18. Driver interface (90) according to claim 17, **characterized in that** the input arrangement (92) comprises an actuator of joystick type (400), a rotary selector (410) and a push button (420) both arranged on the actuator (400), and three shortcut keys (430) arranged in front of the actuator (400).
19. Driver interface (90) according to claim 18, **characterized in that** the actuator of joystick type (400) is guided to a number of perimeter positions corresponding to the selection fields of the main section.

21

20. Driver interface (90) according to claim 19, **characterized in that** the actuator of joystick type (400) is guided by a force-feedback arrangement.
- 5 21. Method of operating a vehicle control system (10), capable of controlling a number of controllable motor vehicle subsystems according to at least two preset vehicle operating modes, the control system (10) comprises a central control unit (20) for controlling the motor vehicle subsystems, and a driver interface (90) for selecting operating mode, **characterized by** the step of, limiting possible mode selections in accordance with a number of preset operation rules.
- 10 22. Method according to claim 21, **characterized by** the step of registering current operating condition using at least one sensor (100–130), and in that at least one operation rule limit access to at least one of the preset operating modes in response to an output value from at least one sensor (100–130).
- 15

BEST AVAILABLE COPY